

REMARKS

Upon entry of the foregoing amendment, claims 1-5, 7 and 9 are pending. Claim 6 is newly canceled herein. Claim 8 was previously canceled in an earlier amendment. Claim 1 has been amended to include the text of claim 6. Support for the amendments to claim 1 is found, for example, in original claim 6 and elsewhere throughout the specification. The amendment is not believed to add new matter. Applicants reserve the right to pursue the cancelled subject matter in one or more continuing applications.

The amendments to claim 1 made herein address the issue raised by the Supervisor in a discussion with the Examiner held subsequent to the Examiner's January 11, 2006, interview with the undersigned. During the discussion with the Examiner, it was stated that the Supervisor has asserted that the claims remain obvious over Hoffman, thus failing to overcome the rejection under 35 U.S.C. § 103 (a) (*See*, Section A, "Interview"). Claim 1 is newly amended herein to include the text of already-examined claim 6. Thus, the amendment to claim 1 is not believed to raise new issues requiring further search and consideration.

The amendment is believed to place the application in condition for allowance, or alternatively, in better form for Appeal. Entry of the amendment is respectfully requested and believed proper for at least the reasons above.

A. Interview

Applicants wish to thank the Examiner for the personal interview conducted with the undersigned at the Patent and Trademark Office (PTO) on January 11, 2006. At the interview,

the pending claims, current rejections and prior art of record were discussed. No agreement was reached. The Examiner agreed to present Applicants' arguments to her Supervisor. In a subsequent teleconference with the Examiner, the Examiner indicated her Supervisor raised an issue impeding allowance of the claims. The amendments to claim 1, above, are believed to address and overcome the issue raised by the Supervisor.

B. Summary of the Office Action

Applicants acknowledge with thanks the withdrawal of the rejection under 35 U.S.C. § 112, second paragraph.

Claims 1-5, 7 and 9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Hoffman *et al.* (U.S. Patent No. 5,873,196) (hereinafter "Hoffman") in view of Shin *et al.* (U.S. Patent No. 5,459,121) (hereinafter "Shin").

C. Rejection under 35 U.S.C. § 103(a)

Claims 1-5, 7 and 9 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Hoffman in view of Shin. Claim 1 is newly amended herein. Claim 6 is cancelled. This rejection is respectfully traversed for at least the following reasons.

Applicants assert that the rejection under 35 U.S.C. § 103(a) should be withdrawn because neither Hoffman nor Shin, whether taken alone or combined, teach or suggest each feature of newly amended claim 1. (See, MPEP § 2143.03: "[t]o establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 409 F.2d 981, 180 USPQ 580 (CCPA 1974).") Since neither Hoffman or

Shin, taken alone or together, teach or suggest each and every element of independent claim 1, the Office has failed to set forth a *prima facie* case of obviousness.

Hoffman discloses an implantable device which can be 2.0-100 mm in size (*see*, for example, column 4, lines 6-7). The implantable device comprises an amount of an active substance which is the total amount to be released to the plant (*see*, for example, column 2, lines 5-12). The device is implanted into cavities formed by drilling holes into the plant's shoot axis (*see*, for example, column 4, lines 18-20).

Applicants' method differs dramatically from the disclosure of Hoffman. In Applicants' method, a substance is introduced into plant tissue by removal of branch tissue to expose the conductive tissue of the branch and then contacting the exposed conductive tissue with the substance (*see*, for example, specification page 5, lines 9-18). Hoffman, however, discloses forming cavities by drilling holes in the shoot axis in order to insert an implantable device comprising the substance. For at least the reasons provided below, Applicants submit that the removal of branch tissue to expose conductive tissue to the substance is very different from Hoffman's method of forming cavities by drilling holes in which to insert the device comprising the substance. In addition, in view of the size of the implantable device of Hoffman, it would be very difficult to insert into the conductive tissue in the branch using the methodology proposed by Hoffman.

Claim 1 specifically claims contacting branch tissue with the substance. In contrast, Hoffman specifically discloses implantation of the device comprising the substance into the shoot axis of the plant. The shoot axis of a plant is not the same as a branch of a plant. *See*, the definition of "axis" (Webster's Dictionary 81 (3d ed. 2005)): "Axis. 6. *Bot.* The main stem or

central part about which organs or plant parts are arranged.”)(copy attached) available in a standard reference dictionary.

Thus, Hoffman fails to teach or suggest removal of branch tissue to expose conductive tissue and subsequently contacting the exposed conductive tissue to the substance. Shin discloses a method to reduce plant water loss by closing stomata openings and reducing plant transpiration by chemical means. Shin does not teach or suggest removal of branch tissue to expose conductive tissue and subsequently contacting the exposed conductive tissue to the substance. Thus, the secondary reference, Shin, fails to cure the deficiencies of Hoffman.

Thus, the prior art of record (Hoffman and Shin), alone or in combination, fails to render obvious the invention as claimed in claim 1. In view of the failure of the Office to establish a *prima facie* case of obviousness, the rejection is legally improper.

Because claim 1 is allowable over the art of record, dependent claims 2-5, 7 and 9 are allowable at least because of their dependence from claim 1, and the reasons set forth above. Reconsideration and withdrawal of the rejection is respectfully requested.

In reply to Applicants’ arguments that Hoffman does not include any discussion regarding the flow direction of conductive tissue, the Office stated “...one skilled in the art would know that anything released into a plant would be transported through the plant by conductive tissues, mainly the phloem, which transports water, sugars and amino acids from the leaf to the rest of the plant.” Office Action at page 2. In reply to Applicants’ argument that Shin does not teach the relationship between reducing plant transpiration and the flow direction of conductive tissue nor the introduction of a substance into a plant (from the outside), the Office stated “....one skilled in the art would know that the phloem (*i.e.*, conductive tissue) transports

water away from the leaf. If there are no leaves, the transpiration route would be reduced.”

Office Action at pages 2-3.

However, the point of the present invention is to change the flow of vessels in the branch to the opposite direction (from a branch to a stem) in order to introduce a substance into a plant body via vessels. Vessels normally flow from a stem to a branch and a substance is not easily introduced from a branch into a plant via vessels, although sieve tubes normally flow from a branch to a stem. Therefore, claim 1 is amended to clarify a principle of the present invention, *i.e.*, changing the flow of vessels in the branch.

If the Office maintains this rejection, the Office is respectfully requested to provide detailed reasoning as to how Hoffman and Shin, taken alone or together, teach or suggest removing branch tissue to expose conductive tissue of a branch and absorption of the substance through the conductive tissue while inhibiting transpiration.

CONCLUSION

In view of the foregoing, Applicants submit that the pending claims are in condition for allowance, and respectfully request reconsideration and timely allowance of the pending claims. Should the Examiner feel that there are any issues outstanding after consideration of this response, the Examiner is invited to contact Applicants' undersigned representative to expedite prosecution. A favorable action is awaited.

EXCEPT for issue fees payable under 37 C.F.R. § 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. § 1.16 and 1.17 which may be required, including

any required extension of time fees, or credit any overpayment to Deposit Account No. 50-0573.


This paragraph is intended to be a **CONSTRUCTIVE PETITION FOR EXTENSION OF TIME** in accordance with 37 C.F.R. § 1.136(a)(3).

Respectfully submitted,

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By:


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Attachment: Page 81, Webster's Dictionary

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